

REMARKS

Claims 1, 3-7, 9, 11-21 and 23-28 are pending in the application.

Claims 28-29 are new.

Claims 1, 3-7, 9, 11-21 and 23-27 are rejected under 35 U.S.C. 103(a).

Claim Amendments

Claim 18 was amended to correct a grammar error. Claims 28-29 are new. Support for claims 28-29 may be found in the application as filed, for example, on page 5. No new matter has been added.

Examiner Interview

On March 24, 2006, Derek Meeker, an attorney for the Applicant, and the Examiner conducted an interview. In the interview, elements of the pending claims were discussed in reference to the cited references used to reject the claims. The Examiner withdrew the finality of the pending office action, and issued a supplemental non-final office action.

Claim Rejections – 35 U.S.C. § 103

There is no suggestion or motivation to combine Iwakiri and Shyu

There is no suggestion or motivation to combine Iwakiri and Shyu. Iwakiri describes a device for engraving an identification mark on a semiconductor wafer, and modifying the engraving process in response to a comparison of the engraved identification mark and engraving information. *Iwakiri, Abstract*. Although characters are mentioned in Iwakiri, only a generic “comparison of read information” is described, not an optical character recognition (OCR) technique. *Iwakiri, col.*

Shyu describes an efficient method of processing printed forms with handwritten entries using OCR. *Shyu, col. 1, ll. 15-27*. There is nothing in Shyu about semiconductor wafers or machine made engravings to suggest combining the two references. Similarly, there is nothing in Iwakiri about reading printed forms with handwritten entries to suggest combining the two references. Thus, a person of ordinary skill in the art would not combine Iwakiri with Shyu.

The Examiner's stated motivation for combining Iwakiri and Shyu is contradicted by Shyu

The Examiner has argued that the motivation for combining Iwakiri and Shyu is the motivation to use an OCR technique if the characters were not imaged clearly because OCR techniques perform comparisons to best suggest what the character actually is. This is in direct contrast with the teachings of Shyu. In Shyu, the OCR occurs at the beginning of the method. If the character is not imaged clearly, the OCR will fail and a human must interpret the character. For example, if a document is classified as “manual” because at least one character is not recognized, the flow proceeds to 108 or 114 where field or character editing by a human is performed. *See Shyu, FIG. 2, and col. 5, ll. 5-11, and 53-55.* Thus, it is a human editor that is used if characters are not imaged clearly and a human editor that best suggests what a character is. One skilled in the art would not use an OCR technique to best suggest what an unclear character actually is.

If Iwakiri and Shyu are combined, the suggestion is to attempt to correct the marking, not to determine the characters to be defective

In Iwakiri, some engraving errors result in a modification of the engraving process. *Iwakiri, col. 3, ll. 47-52 and Abstract.* All that happens if a comparison fails is that the engraving is stopped and the wafer is not sent to the lapping step. *Iwakiri, col. 3, ll. 53-56.* Nothing is mentioned as to what happens to the wafer next. In fact, in Iwakiri, “When the invention is constructed as above, all the engraved marks on the semiconductor wafers can be inspected, thus preventing the engraving of defective marks.” *Iwakiri, col. 3, ll. 57-59.* It does not say reducing defective marks, but preventing defective marks. Thus, the method of Iwakiri results in no engraving of defective marks. As a result, the wafer that did not proceed to the lapping step must be engraved again. Otherwise, there would be a wafer with defective marks. If there are no defective marks, then there are no defective products. Thus, the goal of Iwakiri in response to some errors is to modify the process, not to reject the semiconductor wafer.

Similarly, as described above with respect to Shyu, if an OCR technique fails to recognize a character, an attempt is made to correct the problem. Furthermore, even if all characters are not recognized as in the “rejected” state, an attempt is made to correct the problem. *Shyu, col. 5, ll. 30-35.* The characters are not determined to be defective.

In contrast, claim 1, for example, recites that if at least one of the characters is not recognized, the actual character markings are determined to be defective. Independent claims 9, 15, 18 and 25 all include similar elements. No attempt is made to correct the characters as in both Iwakiri and Shyu. Thus the combination of Shyu and Iwakiri does not teach each and every element of claim 1.

In addition, the Examiner has argued that if a character is not recognized, it would be beneficial to determine so in order to mark the semiconductor as defective as taught by Shyu. However, only one determination is made in response to an OCR technique in Shyu. The very first classification of documents into “correct”, “manual”, or “rejected” is made in response to OCR. *Shyu, col. 2, ll. 26-49*. Some “manual” classified documents and all “rejected” documents have characters that were not recognized. *Shyu, col. 5, ll. 12-13, and 28-34*.

However, the result of the classification is not a determination that the actual character markings are defective. There is a distinction between a failure to recognize a character and a determination that the character is defective. A failure of an OCR technique to recognize a character is only that. It is a failure to recognize a character, not a determination that the character is defective. A determination of defectiveness may be made in response to a failure to recognize a character, but the two are not synonymous. For example, an OCR technique for recognizing Latin characters may not recognize kanji characters, even though the kanji characters are not defective. A perfectly formed kanji character is not defective, yet the OCR technique could not recognize it. Shyu recognizes this, and the response is not a determination of defectiveness, but an editing process such as “character editing”, “field editing”, or “form editing”. Thus, in Shyu, a failure of the OCR to recognize a character is not a determination that the character is defective, but a determination that editing is needed. Thus, if Shyu is combined with Iwakiri, there is still no determination of actual character marking as defective in response to not recognizing at least one character.

Claims 9, 15 and 18, and their dependent claims, were rejected using various combinations of Iwakiri, Shyu, Akamatsu (US Patent No. 5,768,290), Caldwell, et al. (US Patent No. 5,575,136) and Stubblefield, et al. (US Patent No. 6,043,101). However, none of the additional references cure the deficiencies of the combination of Iwakiri and Shyu, described above. Thus, the combination of references does not teach or suggest each and every element of claims 9, 15, 18, and their dependent claims.

The Applicant requests that the Examiner withdraw the rejections of claims 1, 3-7, 9, 11-21 and 23-27.

The combination of Iwakiri and Shyu does not teach or suggest classifying a semiconductor product as defective

Claim 26 includes classifying the product as defective if one or more of the characters in the actual sequential character markings cannot be recognized as a character. In rejecting claim 26, the Examiner argued that Fig. 2 of Iwakiri teaches determining if a marking is defective and classifying it as so. Even assuming that the statement is true, then it is the marking that is classified as defective, not a semiconductor product.

As described above, the results from a failure to recognize a character in Iwakiri and Shyu are to correct engravings or characters that are not recognized. In Iwakiri, defective engravings are prevented. In Shyu, once a paper document is scanned by scanner 52, the paper document is not referenced again. Thus, that paper document is not classified as defective in response to anything described in Shyu.

Even if the scanned image of the paper document in Shyu is read as a semiconductor product, the failure to recognize a character has no effect on whether the scanned image is rejected in 124 of Shyu. An intervening step of editing always occurs, and it is the result of the editing that determines if the scanned image is rejected. Furthermore, even if all characters are recognized, a scanned image may still be classified as “manual” and some editing is required. *Shyu, col. 5, ll. 12-13.* Thus, even if Shyu is combined with Iwakiri, a failure to recognize a character does not result in classifying a semiconductor product as defective. The Applicant requests that the Examiner withdraw the rejections of claim 26.

Shyu does not suggest unloading a defective product after at least one of the characters is not recognized without further examination of the characters

Claim 28 includes unloading a defective product after at least one of the characters is not recognized without further examination of the characters. As described above, in Shyu, if a character is not recognized, the result is further editing, not unloading. Thus, an editor examines the characters. As a result, the combination of Iwakiri and Shyu and any of the other references does not teach or suggest each and every element of claim 28.

Shyu does not suggest unloading a defective product immediately after at least one of the
characters is not recognized

Claim 29 includes unloading a defective product immediately after at least one of the characters is not recognized. As described above, in Shyu, if a character is not recognized, the result is further editing, not unloading. Thus, there are intervening processes, such as editing that occur before any possible unloading. As a result, the combination of Iwakiri and Shyu and any of the other references does not teach or suggest each and every element of claim 29.

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1, 3-7, 9, 11-21 and 23-29 of the application as amended is requested. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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